NECK DISSECTION CRITERIA IN CARCINOMA OF PAROTID GLAND

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Introduction. The indications for elective treatment of the neck are not well defined for cancers of parotid gland origin. In fact, if the treatment of N+ patients presents no doubt, there are still many controversies in decision making of N-. In order to clarify indications for lymph-adenectomy in case of salivary gland carcinoma, we have reviewed our files evaluating the results of different treatments on patients survival.

Materials e methods. From 1975 to 1995, at the Department of Maxillofacial Surgery of the Faculty of Medicine and Surgery of "Federico II" University of Naples (Naples, Italy), we treated 55 cases of malignant parotid tumors. In all N+ cases (22 patients) and in two cases N- with skin involvement we performed a total parotidectomy plus radical neck dissection. In 16 patients who had preoperative facial palsy we performed a total parotidectomy with sacrifice of nerve. In the remaining N- cases (15 patients) we have performed a total parotidectomy, without lymph nodes treatment. Surgery has been followed by radiotherapy. During a variable follow up from 1 to 15 years, we checked 41 patients.

Results. At the time of the first observation, 38 patients had an age between 41 and 60 years, 9 patients were less older than 39 years and 8 patients more older than 60 years. We noticed only a little preference for males (30cases). Regarding T-staging, 8 patients were classified as stage I, 26 patients as stage II, 19 as stage III, and 2 as stage IV.

Of all patients treated by parotidectomy and radical neck dissection, only in 2 case (among 18 followed up), we found a local recurrence Among patients treated by total parotidectomy, without lymphatic treatment, we observed 3 cervical nodes metastasis.

Discussion and conclusion. There is no problem for indications on neck dissection in N+ patients, but the doubt exists for patients N-. Some Authors suggest to perform neck dissection in case of high grade of malignancy, because these tumors can more easily determine micrometastasis, whilst others indicate to perform neck dissection also in intermediate cases of adenocarcinoma, mucoepidermoid and undifferentiated tumors, as our experience seems to confirm. Our data suggest that neck dissection should also be performed in case of T3 or greater tumors and in presence of clinical simptomatology such as facial nerve paralysis or skin involvement.

L. Califano, A. Zupi, P.S. Massari, C. Giardino. Indication for neck dissection in carcinoma of parotid gland. Int Surg 1993;78:347-349

SURGICAL TREATMENT OF MALIGNANT MAXILLARY TUMORS

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Introduction

Malignant maxillary tumors represent a large chapter in the oral neoplastic patology. Although theese tumors arise from a limited anatomical area, the hetereogeneous nature of maxillary tissue and the maxillary bone architecture make difficult to set a reference to well-defined parameters, such as those about the clinical staging.

Methods

Maxillary bone is defined by topografic anatomy as a bone complex composed by six pair of simmetrical bones and by one other bone (Vomer) that are deeply articulated. This bone complex forms an unique bone block, that is tightly connected to the others facial structures.

Under a clinical profile maxillary bone holds three adjacent and overlaying zones, called infra, meso and sovrastructure.

Results

Surgical treatment of malignant maxillary tumors requires in many cases demolitive interventions, because of the large number of patients having at the first medical evaluation a progressed tumoral mass and because of the need to achieve a complete resection of tumor in an anatomical zone very vulnerable under a functional profile.

The "conservative" surgical approach for malignant maxillary tumors raising from the infrastructure has reached a progressive importance in the latest years. This is due to to the progresses made in plastic and reconstructive surgery.

Discussion and Conclusions

The authors wish to express some fondamental concepts concerning malignant maxillary tumorsin order to justify the low surviving rates.

Neurosurgery

Extra-axial cavernoma of the cisterna magna. A case report.

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Introduction

Cavernous angiomas are relatively uncommon intracranial lesions which account less than 1% of the cerebral tumors and 5-13% of the vascular anomalies of the brain. These lesions are congenital and have a very low hereditary incidence and are rarely multiple. Their infratentorial location is unusual, accounting 5-20% of all cavernomas, and is almost exclusively intra-axial. The extra-axial site in the ventricle, in the pineal region, in the cerebello-pontine angle, and particularly in the cisterna magna, is extremely rare. In this work we report a case of extra-axial cavernoma located in the cisterna magna. After reviewing all the literature about this pathology we have found only other three cases reported to date.

Methods

A 76-year-old man with a 3-year history of gait disturbances, instability, and frequent downfalls was observed. MR before and after contrast administration and angiography were in favour of a probable cavernoma located at level of the foramen magnum on the right side. The patient was operated on in semisitting position, via median suboccipital route and C1 right emilaminectomy. After opening the dura a mulberry-like, pulsating mass, almost 3 cm in size, was disclosed. It was completely extramedullary and the blood supply was from PICA. The vascular pedicle was coagulated and cutted and the lesion was "en-bloc" removed.

Results

The symptoms suddenly disappeared after surgery. The postoperative outcome was uneventful and the patient was discharged after seven days with complete recovery of the symptomatology. The postoperative MR confirmed the radical resection of the lesion.

Discussion

Although histopathologically similar to intra-axial cavernomas, the extra-axial ones represent a distinct group because of clinical manifestations suggestive of a neoplasm, including mass effect, encasement of vascular and nervous structures, high risk of preoperative hemorrhage and also tremendous intraoperative bleeding and postoperative hematomas. For this reason the perioperative mortality rate is 38%.

Conclusions

The most accurate radiological examination is MRI. The treatment of choice is surgery, radiotherapy has to be performed only in subtotal removals or in debilitated patients. Still unclear and controversial is the hemorrhagic potential which we believe is much higher than intra-axial cavernomas.

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APPLICATION OF SHAPE MEMORY TITANIUM-NICKELIDE IN SPINAL SURGERY

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The thermomecchanical memory effect characterizes intermetallite Ti-Ni (titanium 45% - nickel 55%) and therefore has induced the application of this new alloy in spinal surgery.
This original instrumentation (staples, clips, clamps and so on) is specially useful in patients with vertebral fracture-dislocations for expandable or retractable stabilization without fusion.
These procedures are performed via anterior or posterior approaches on all spinal axis.
The operative techniques are presented and finally the risults are analyzed.

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CERVICAL DISC HERNIATION. FUSION WITH ILIAC CREST OR CARBON FIBER CAGE. REVISION OF 47 CASES.

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The anterior approach to the cervical spine is still causing controversies mostly regarding the necessity to use any intervertebral disc substitute and, if so, which kind of material to implant. In simple discectomy the main problem is the kyphosis, 62.5% of cases in respect to 40 % in cases fused with iliac crest. The main problem to use the iliac crest is the postoperative iliac pain. However the choice to use a graft and the material to use depends on the single surgeon feeling. We usually prefer to use an interbody spacer. WE have revised 47 patients, 27 men, 20 women, mean age 50,2, operated on during a three years period by an anterior cervical approach for disc pathology (herniation or osteophytes). In 31 cases fusion was obtained by iliac crest bone (Group A), in 16 by carbon fiber cages (Acro-Med) (Group B). Twenty two carbon fiber cages were implanted. The minimum follow up was 6 months. The patients were bearing a Philadelphia collar, Group A for 6 weeks, Group B for 8-10 weeks respectively. Significant differences regarding the clinical outcome between the two groups were not found. The operative time was shorter of about 40 minutes in group B. The fusion time (RX controlled) was about two months for Group A, 3-4 months for Group B. In Group B patients, significant artifacts at MRI were not observed. In Group A, a case of infection at the iliac crest was observed and iliac pain persisted in about 22% of cases after 6 months. In conclusion, for iliac crest fusion, the advantages are: economic saving, rapid fusion; the disadvantages are: iliac pain, iliac complications, longer operative time. For carbon fiber cage fusion the advantages are: reduced operative time, no iliac complications; the disadvantages are: the cage cost, the slow fusion. Considering all these factors we actually prefer to use the carbon fiber cages.

Transethmoidal approach to the skull base with the MKM neuronavigator. Anatomical study.

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Introduction

Skull base surgery is often extremely difficult because of the involvement of the vascular and nervous structures. It still represents a great challenge for neurosurgeons. Neuronavigation systems are very useful in reducing the invasiveness of the approaches in many cases. They consent the possibility to preoperatively plan the surgical strategy and more accuracy in performing surgery. Their use is sometimes extremely important in approaching lesions involving the so-called "no land's man areas". Anterior approaches to the skull base are by now routine for the management of lesions like cordoma, condrosarcoma, angiofibroma, pituitary adenomas extending in clival area. Transethmoidal approach has became the transfacial approach of first choice because of less morbidity, and it consents a wide exposure of the sphenoclival region and paranasal sinuses with excellent cosmetic results.

Methods

The Multi-Coordinate-Manipulator (MKM) is a computerized system able to tridimensionally elaborate data of CT and MR or even other radiological examinations, preoperatively performed. It shows these data on the focal plane of the surgical microscope using the spatial coordinates x, y, z. This can be obtained using a 5 mm. titanium screw set, at least 3 fiducials, better if more, which, fixed in the bone, are recorded on the CT and MR scans. For this study we have used 5 cadaver heads fixed in formalin. The vessels were injected with colored silicon (Silastic 3110). The fiducials were positioned in the frontal bone on the midline and laterally just behind the hair line. One mm. CT scans between the upper fiducial and C2 have been performed (gantry 0) and the data have been elaborated by system software (STP 3.1 Leibinger) making measurements of the coordinates of every single point. Dorello's canal, carotid arteries, optic nerves, ipoglossal canal, foramen rotundum and foramen ovale have been preoperatively marked and contoured. The heads have been positioned on the Mayfield head holder and the referencing point stage started.

Results

The data evidenced by the MKM have been compared with mm. paper and we found an error from 0.7 to 2.5 mm. (average 1.6 mm.), lesser than that measured by other neuronavigation systems.

Discussion

The MKM system consents to have a stereotactic guide to the target points since it is an "active" neuronavigator, using a laser probe. The surgeon, while operating, can see directly in the optic of the microscope the distance between the point where he is working on and the target. Other navigators work with ultrasounds or infrared and have a mechanical arm. The accuracy of these systems is influenced by many factors like positioning of the probe, other echoes in the operating theatre, the sound speed which depends by temperature and umidity conditions. These factors do not modify the accuracy of measurements of the MKM and in many surgical procedures around skull base, extremely accuracy must be obtained.

Conclusions

Computer assisted surgery is a very important aid in reducing invasiveness in skull base surgery.

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Spinal Dural Arteriovenous Fistulas. A series of 36 cases.

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Dural arteriovenous fistulas (DAVF) of the spinal canal are a relatively new pathological entity, first described by Kendall and Logue (1977).
DAVF is now recognized as a particular pathological entity different from the classical medullary angiomas and represents the most typical spinal vascular malformation of the adult. Males are prevalently affected, while women are involved only in about 15% of the cases.
The site of the fistulas is usually located in the lower thoracic region, but the dilated perimedullary veins extend for several segments. The increased venous pressure into the coronal venous plexus (CVP) causes congestion and stagnation of the intramedullary veins whose drainage into CVP is hindered: that is likely to cause a decreased arteriovenous pressure gradient, with a reduction of blood flow to the spinal cord and consequent ischemia.
The etiology is unknown. Some features suggest a post-thrombotic or post-traumatic etiology of the lesion.
The therapy is occlusion of the fistula either by embolization or surgically. The aim is to occlude the draining vein, in order to obtain the persistent occlusion of the fistula, that cannot be guaranteed by the simple esclusion of the feeding arteries. Embolization is a relatively easy method, but recanalization can occur, more frequently with particles than with polymerizing liquid, for this reason some Authors prefer to treat DAVF directly by surgery.
Thirtysix patients (31 males, 5 females) with DAVF admitted in two Neurosurgical Department of Turin Italy, have been the object of this study. Their age was ranging from 30 to 75 years (average 53 y)
The disease was characterized in the majority of cases by a gradual onset with a slow progression of symptoms. The most common symptom was a paraparesis which could be flaccid or spastic depending on the prevalent involvement of the upper or lower motor neuron. Sensitive impairment and sphinteric dysfunction can be also observed. In 16 cases the endovascular procedure was the only treatment, in 17 cases surgical treatment was performed (5 cases as first option, 12 cases after endovascular embolization). In 32 cases a clinical and neuroradiologic 6 months- 8 years (mean 30 months) follow up was performed. In all the cases the treatment has been successfull, with a stop of the progression of the disease and a different rate of remission of clinical preexisting symptoms.

SURGICAL MANAGEMENT OF THE TETHERED CORD SYNDROME

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The tethered spinal cord (TSC) syndrome comprises a variety of conditions that limit the normal physiological mobility of the spinal cord, with associated varying secondary significant neurological dysfunction. These limitations occur most frequently during repeated extreme degrees of motion or during neuraxis growth in childhood and adolescence. The resulting traction of the spinal cord is most pronounced at its terminal aspects, i.e. the lumbo-sacral roots. The optimal surgical approach for children and adults remains still controversial. Progressive neurological dysfunction, as characterized by motor, sensory, and anal/bladder dysfunction, low back pain, lordoscoliosis or foot deformities necessitate a surgical treatment. In the period from January 1995 to December 1998, we treated 15 patients affected by TCS, of which, 6 cases associated to a lipomielomeningocele and all with a lipoma; one patiente presented, moreover, a dermal sinus in lumbo-sacral region. These cases were characterized by weakness in the distal lower extremities, sensory changes in the area corresponding to S3, S4, and S5 dermatomes; bladder disturbances was also present in 5 patients. Deformities of the lower extremities was also present in three patients. Patients were submitted to a complete preoperative assessment, which included also MR, electromiography, and urodynamic studies. All patients were treated by laminectomy and resolution of the scar tissue, with interruption of the filum terminalis. Associated lesions were also treated and mielomeningocele, when present, was repaired. All patients showed a significant amieloration of the neurological deficits. Postoperative MRI evidenced a complete resolution of the TSC, while both electromiography and urodynamical studies showed a resumption of function. Objective of the surgical treatment is the release of the TSC in order to ameliorate or, at least, arrest the related neurological deficits.

MOTOR EVOKED POTENTIALS (MEPs) MONITORING DURING SPINAL SURGERY

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INTRODUCTION
Intraoperative neurophysiological monitoring (IOM) is becoming more and more popular. Different forms of monitoring somatosensory evoked potentials (SEPs) have been used for almost two decades during spinal surgery. However, postoperative motor deficits have been reported in spite of unchanged intraoperative SEPs. Baseline SEPs may often be absent or of very poor quality and in these cases the operation would be unmonitorable using SEPs alone. Therefore, several techniques have been developed to monitor the activity of cortico-spinal tracts. We report our experience on intraoperative MEPs monitoring during 41 cases of spinal surgery.
MATERIAL AND METHODS
41 patients were operated on at cervical or thoracic spinal level with the assistance of IOM. The protocol consisted of: somatosensory potentials evoked by peripheral nerve stimulation and recorded from the spinal epidural space and/or from the scalp; motor potentials evoked by transcranial electrical stimulation of the motor cortex and recorded from the spinal epidural space and/or from the muscles.
RESULTS
15 patients (36.6%) had absent or very poor quality baseline SEPs. 4 patients had also absent MEPs (muscle responses and/or D-wave). These cases were unmonitorable (9.75%). Baseline MEPs were present in all the remaining patients. MEPs were stable throughout the operation in 30 out of 37 monitorable cases. In 3 cases we recorded temporary changes in MEPs. Permanent changes were recorded in 4 cases. The neurological outcome was consistent with IOM. The analysis of our series demonstrate that MEPs allow: 1) to successfully monitor as many patients as possible up to 90%; 2) to avoid damage to the cortico-spinal tract through “warning signals”; 3) to make a postoperative prognosis; 4) to allow the surgeon to be more radical in his/her resection, guided by unchanged potentials; 5) to facilitate identification of injury mechanisms, when the potentials deteriorate.
CONCLUSIONS
We can conclude that IOM must be routine during spinal surgery and that MEPs monitoring is of paramount importance.
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Anterior screw fixation of type II odontoid fractures. Our experience.

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Background. High cervical injuries account for about 20% of spine injuries. Up to 40% are type II odontoid fractures, which have the highest non-union rate. Nowadays, anterior screw fixation (ASF) is considered one of the treatments of choice of type II fractures. Clinical Material and Method. Clinical findings, treatment, and outcome were examined in 8 patients suffering from a post-traumatic type II odontoid fracture and treated with ASF. There were 4 males and 4 females, with a mean age of 60 years (range 20-90). On admission, neurological examination was normal in 6, whereas in 2 cases motor and sensitive deficits due to the contemporary involvement of brachial plexus were observed. Cervical X-rays and CT scan with multiplanar reconstructions were performed in all. Results. A closed reduction of the type II odontoid fracture was obtained before surgery with Halo-traction in all cases. After stabilization of neurological and general conditions an ASF was performed with 1 or 2 cannulated screws in titanium. In order to obtain an optimal fusion, in 2 cases a posterior fixation with wiring or Halifax' clamps was necessary. Post-operative mortality was zero. After a follow-up ranging from 6 months to 2 years, 7 patients showed a complete fusion. One patient, with poor preoperative physical condition, experienced a broncopneumonia resolved with antibiotics and a non-union at 4-month follow-up. Long-term union and stability was obtained after a further period of immobilization in Halo-vest. Conclusions. Patients with traumatic fractures of high-cervical tract may achieve significant good results following appropriate surgery, including ASF for type II odontoid fractures, with a tolerable rate of complications. Good preoperative physical conditions and absence of bone fragments displacement seem to be the most reliable predictors of good surgical result.

OSTEOSYNTESIS IN SPINAL TUMOR SURGERY

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Introduction: The spine instability after tumor removal reduces the quality of life in patients affected by spinal tumors. The actual instrumentation for spine stabilization has recently enlarged the indications for spine tumor resection, spinal solitary metastasis included, allowing fast recovery.

Methods: In the last 5 years we have operated 14 patients, between 12 and 63 years old, 8 women and 6 men. In 7 cases the tumor was primitive (2 osteoclastomas, 2 osteoblastoma, 1 aneurismal cyst, 2 plasmocytoma), and in 7 it was metastatic (3 of breast cancer, 3 prostatic, 1 renal). Tumor location was: in 3 cases cervical, in 8 cases dorsal and in 3 cases lumbar.

In 6 patients affected by spine metastasis, from chemo or radio-sensitive tumor, and in one by lumbar osteoblastoma, the posterior osteosyntesis only was performed. In the others 6 primitive tumors and in one case of renal metastasis posterior and anterior surgical procedures were required, to stabilize the spine and remove the tumor. In all cases we also applied bone graft, that allows long time spine stability.

Results: As regards pain and motor symptoms, the results were good in all cases, notably for these operated by anterior and posterior approach: after 6 and 9 months from the operation 2 patients with dorsal metastases died for metastatic spreading to other sites, the others had a good recovery and are still alive.

Conclusions: we consider that anterior and/or posterior osteosyntesis, (in alternative to simple immobilization of the patients), with - complete or not - removal of the tumor, allows to increase the life expectancy and to improve the quality of life in these patients, maintaining spinal stability and reducing pain and motor symptoms.

On the other hand, we remind that patients with a life-prognosis less than six months are not eligible for osteosyntesis.

INTRADURAL SPINAL CORD TUMORS: DIAGNOSIS AND TREATMENT

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Introduction: Spinal cord tumors are rare, however they can have grave implications for the patients' quality of life. The main goal in the management of spinal cord tumors is their timely diagnosis and treatment to preserve function.

Methods: From 1994 to 1998, 36 patients (16 M, 20 F), age range 15 to 74 years affected by intradural spinal cord tumors were operated on. The spinal level was: 8 cervical, 14 dorsal and 18 lumbar.

Histological diagnosis was: 14 neurinomas, 6 ependymomas, 6 meningiomas,4 gliomas, and in 6 cases dermoid or lipoma or angioreticuloma or metastasis.

In all cases microsurgical tumor resection, as possible with ultrasound, was performed. Only patients with glioma or metastasis to postoperative radiotherapy were submitted.

Results: In cervical and lumbar tumors the first symptom was pain and radicular signs, while dorsal cases presented gait disturbances.

The MRI with gadolinium revealed the tumor in all cases, but was not able to determine the differential diagnosis in spinal cord tumors.

When complete tumor removal was achieved, all patients quickly improved. In malignant tumors the strategy was subtotal removing and postoperative radiotherapy, with following good recovery.

Conclusions: Preoperative clinical diagnosis of spinal cord tumors is not easy, however, when neurological findings are present, can be suspected. The MRI with gadolinium is the exam of choice for diagnosis and surgical treatment. With the advances in microsurgical and monitoring techniques complete surgical removing should be accomplished whenever possible. Adjuvant radiotherapy should be recommended only for malignant tumors.

Frameless stereotaxy for spinal fixation surgery

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Introduction: Spinal neuronavigation is still a field in development. We present our experiences in regard to referenciation problems, accuracy, integration of navigable instruments and future developments.

Methods: From Aug. 1996 to Oct. 1998, a total of 42 spinal fusion procedures were performed using the STN system. Referenciation was based on anatomical markers like the apex of the spinous processes and the vertebral joints.

Results: In the first 12 cases we used one single referenciation for the whole spine, resulting in a poor accuracy. Consequently, we changed to single vertebra navigation. Overall, a total of 128 screws were inserted by use of frameless stereotaxy (26 cervical, 18 thoracic, 84 lumbosacral). Accuracy rate was 100% for cervical and thoracic screws, but only 79% for the lumbar spine. Intraoperative mean deviation was 0.8 mm for the cervical, 1.5mm for the thoracic and 1.3mm for the lumbar spine.

Discussion: In vivo application of spinal neuronavigation is still an exception. Anatomical referenciation is a non-invasive, but highly accurate method. We expect further improvements by the introduction of surface scanning referenciation. Single vertebra navigation eliminates the problem of mobility of one vertebra against the other. Intraoperative movements due to respiratory motions and surgical manipulations may be responsible for our 21% inaccuracy rate for the lumbar spine. Such movements may be compensated by a tracking tool, which,however, is still to large for clinical use. The cervical area is far less sensitive for this problem, and frameless stereotaxy could improve save screw placement especially for dorsal fixation procedures in the atlanto-axial region. Furthermore, all instruments entering bone should be suitable for navigation.

Conclusions: Spinal neuronavigation is able to reduce the surgical risk for the patient, the stress for the surgeon and the irradiation dose for both.

SPINAL CORD TUMORS: SCINTIGRAPHIC STUDY WITH 111 In-OCREOTIDE

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Introduction: Scintigraphic with the radiolabelled somatostatin (SS) analogue ^{111} In-Ocreotide can successfully image central nervous system tumors expressing SS receptors. Meningiomas are usually identified by a high tracer uptake reflecting high density and high affinity SS receptors.
Methods: The diagnostic role of radio-ocreotide scintigraphy was evaluated in 8 patients presenting with spinal intradural tumors.
Results: MRI scans correctly identified 3 meningiomas and 3 neurinomas, was equivocal between meningioma and neurinoma in 1 patient and non diagnostic in1 patient. In these 2 patients pathology revealed a neurinoma and an ependymoma, respectively. The ^{111}In-Octreotide scintigraphy correctly identified the 3 meningiomas for the characteristic high uptake. No trace uptake was observed in the other 5 tumors.
Conclusions: Scintigraphy, thus, turned out to be as sensitive as MRI in detecting spinal meningiomas and was superior to MRI for the differential diagnosis between meningioma and neurinoma .Radioreceptor imaging with ^{111} In-Octreotide represents a useful diagnostic procedure which increases the specificity of MRI in patients with spinal cord tumors.

Minimally Invasive Neurosurgery in Thoracic Spine Diseases, the Barrow Neurological Institute Experience

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Here we want to report the experience of the spine section of the Barrow Neurological Institute (BNI), Phoenix, Arizona between 1994 and 1997. Microsurgical approaches for the treatment of pathology located in the ventral thoracic spine using video-assisted thoracic surgery (VATS) allow neurosurgeons to access the disc spaces, vertebral bodies, paravertebral soft tissues, spinal cord, spinal nerves and sympathetic chain with minimally invasive surgery. This has been associated with substantial clinical benefits including reduced post-operative pain, lower complication rates and shorter recovery times when compared with standard thoracotomy techniques. This article describes the experience at our institution with VATS for discectomy (20 cases), corpectomy and spinal reconstruction (8 cases), thoracic sympatectomy (3 cases) and nerve sheet tumor removal (1 case). The technique can be mastered but requires surgeons to learn the new psychomotor skills needed to perform endoscopic spine surgery. The learning curve is steep. Special training in instructional seminars, surgical skill laboratories, and clinical preceptorships is needed before this surgical approach can be used clinically to treat spinal pathology. VATS has significant advantages compared to standard thoracotomy, including reduced incisional pain, and avoidance of the post-thoracotomy pain syndrome. If intercostal neuralgia develops postoperatively, it is milder and usually transient compared to the pain associated with standard thoracotomy. Better cosmetic outcomes, earlier mobilization, and faster recovery are added benefits. The surgical techniques are relatively new for neurosurgeons and require dedicated practice to master them. Once the surgical skills are perfected, VATS is feasible for spinal pathology and can be performed safely and effectively.

POSTERIOR OCCIPITO-CERVICAL INSTRUMENTATION: Personal Experience

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Seven patients (4 males and 3 females, mean age 37.87 years) harboring impressio basilaris (3 cases), genetic dysmetabolic syndromes (1 Down; 1 MPS) and upper cranio-cervical metastatic diseases (1 lung cancer and 1 multiple myeloma) producing cranio-cervical instability underwent preoperative radiological evaluation by means of X-rays, CT scan and MRI of the cranio-cervical region. Occipito-cervical instrumentation with Hartshild U shaped bar and Songer subclavicular wires, was performed in all cases. Occiput (C O) was fixed to 2 cervical laminae in 4 cases and to 3 cervical laminae in 3 cases, according to the local anatomical features (bone assimilation, laminectomies), immediately close to C O or overtaking the osteolytic vertebrae. All patients underwent external orthosis for 3-6 months by using Halo vest (5 cases) Somi (1 case) and Philadelphia braces (1 case). Post-operative X-ray was performed in all cases; CT scan and MRI in 4 cases. The follow up ranges between 8 years and 8 months (mean follow up 35.6 months). Frankel scale clinical assessment was used; at the maximum follow up a clinical improvement or a deterioration arrest was recorded in all but one patient. This was the only patient (impressio basilaris) showing an MRI spinal lesion pattern preoperatively. The goals of spinal internal fixation procedures are to achieve anatomic alignment, protect the neural elements and stabilize the spine yet preserve the motion of normal elements. Underlaminal wiring is not absolutely safe. In our opinion MRI preoperative screening of possible spinal cord lesional patterns appears mandatory in order to preview a possible worsening as well as to prevent undesired failure even by choosing, when possible, an alternative surgical route i.e. the transoral.

Ophthalmologic Surgery

VITREOUS RHEOLOGICAL BEHAVIOUR IN DIFFERENT AGED ANIMALS

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Purpose: The Authors present the experimental results concerning vitreous rheological behaviour in young and aged animals (rabbit and goat).

Matherial and Methods: According to ARVO animal research statements, rabbits (30 days and 3 months old) and goats (3 years and 10 years old) were sacrified and their eyes enucleated and then dissected to obtain the vitreous body within its cortical layer. The mechanical properties of the vitreous bodies were then analysed with the VOR Bholin Rheometer at room temperature. The Authors investigated the viscoelastic behaviour in linear region to determine the G' (Storage elastic modulus) and the G" (Loss Modulus) values for single specimen..

Results: Both the rabbit and the goat vitreous bodies showed a significant difference in front of the age, with G' higher in the young goat than in the aged and G'-G" both higher in the young rabbit than in the aged.

Conclusions: The AA outline how the shock-absorber role of the vitreous could be enlarged to a possible role in the axial growth of the eyeball during the development period.

Dermis fat orbital implant as movable support for ocular prosthesis

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Objective: Twelve patients with dermis fat orbital implant have been retrospectively evaluated to assess results and indication of the procedure.
Intervention: Dermis fat tissue was obtained from upper gluteus-lumbar area and implanted in enucleated sockets. Implants were performed in 10 cases immediately after the enucleation and in two cases delayed.
Main outcome measures: a) time required for complete conjunctival healing b) dermis fat implant volume reduction c) reoperation d) implant motility e) prosthesis motility f) induced palpebral malfunctioning g) cutaneous scar
Results: all patients had complete conjunctival healing in a period ranging between 7 to 21 days . 1 patient had an almost complete fat reabsorption and one required a second procedure for volume augmentation due to partial fatty reabsorption. In one case a volume reduction was necessary. Overall 3 (25%) out of 12 required a second operation. All patients (except one) obtained full implant and prosthesis motiltity. In one case a levator recession was performed for a partial superior lid ptosis. Good cutaneous scar was obtained in all cases although early suture removal produced larger scar in one case.
Conclusions: dermis fat orbital implant is a safe, well tolerated and cosmetically acceptable procedure for routine enucleation. Careful postoperative follow up is required.

"Diagnosis and surgical management in a case of orbital rhabdomiosarcoma"

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Backgrounds: Rhabdomiosarcoma is the most frequent orbital tumor in infancy.
Head and neck are involved in 40% of cases, of these 25-50% are orbital tumors.
Methods: A 7 years-old boy with proptosis presented with mild ptosis associated with mild vertical diplopia in the right eye.
Ultrasound biomicroscopy of the orbit demonstrated a localized neoformation over the superior rectus muscle which was diagnosed as a rhabdomiosarcoma.
On MRI the tumor showed characteristics of a linfomatous lesion.
Immunologic consult, full blood count with specific index of linphoproliferative disease, liver ultrasound assessment and chest x-rays were perfomed.
The lesions was removed by a coronal access through the superiior orbital border.
The lesion resulted circumscribed and localized over the levator muscle without any connection with the muscle.
Results: The histopathologic study demonstrated alveolar type rhabdomiosarcoma.
Conclusions: In the presence of a rapidly progressive proptosis associated with ptosis in a child the diagnosis of rhabdomiosarcoma should always be excluded.

"ICG angiography findings of choroidal melanoma"

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Backgrounds: to evaluate the role of indocyanine green (ICG) angiography in the clinical work-up of patients affected with choroidal melanoma.
Methods: nine eyes with choroidal melanoma diagnosed with combined indirect ophthalmoscopy,ocular ultrasonography and fluorescein angiography, have been studied with ICG angiography;
ICG dye was prepared in solution with 25 mg dose mixed in 2 ml aqueous solvent and injected into a peripheral arm vein; digital videoangiogram fundus photographs were taken using an adapted camera and a digital imaging system.
Results: in seven cases the tumor demonstrated an intrinsic choroidal vasculature; the vessels were identified early within 20 seconds after injection and the filling pattern showed irregular ramifying vessels of variable caliber with staining of the vessels walls within the first few minutes of the study and eventual leakage in later frames by 20 to 30 minutes after injegtion; the remaining 2 eyes with minimally elevated choroidal melanomas showed very little vascular details on ICG.
A fairly well defined hypofluorescence troughout the study caracterized pigmented choroidal melanomas (6 eyes).
In these cases the hypofluorescent area appeared to be larger than suspected clinically.
Conclusions: as a diagnostic adjunct ICG angiography proved to be particularly useful by identifying distinct features that would assist in the detection of tumor intrinsic vessels.
This may assist in distinguishing choroidal melanoma from over common choroidal tumors (naevi, hemangiomas, metastasis and inflammatory lesions)

Conservative theraphy of malignant melanoma of the choroid with ophthalmic plaques of Ruthenium 106

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Conservative theraphy of choroidal malignant melanoma is actually the first choice in the management of this tumor if there are favourable circumstances.
Between conservative tecniques, ruthenium 106 brachitherapy is one of the ophthalmologist's possibility. Lommatzsch introduced this tecnique in 1960, then was used in many other clinical institutes in all the world. Ruthenium 106 has an halflife of about 360 days and emits β radiations while decades into rhodium then into palladium; these radiation are used to destroy the neoplasm.
With this tecnique it's possible to treat until 6 mm melanomas with a basis of 18 mm. It's necessary a 100 Gy dose to the apex to destroy the tumor. The ophthalmic applicator is suturated to the scleral surface corresponding to the tumor in general anaesthesia; then are usually leaved in local anaesthesia.
From 1990 in the University Eye Clinic of Ferrara, we have treated 87 patients.
Everybody were subjected to a rigorous preoperative examination with the aim to confirm the diagnosis, measuring the thickness of the tumor (indirect ophthalmoscopy, ecography and fluorangiography) and showing metastatic lesions which could change the theraphy.
Follow-up provide clinical check every 3 months for two years, then every 6 months until the fifth year, then every year.
The efficiency of the therapy is weighed at 1 year from the treatment.Actually, we have very good results; only 6 cases can be considered as brachitherapy failure.

SURGICAL APPROACH TO DYSTHYROID EYE DISEASE
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Introduction
Graves' ophthalmopathy causes upper and lower lid retraction which may be combined with uni or bilateral proptosis. A system for approaching dysthyroid eye disease is proposed assessing the outcome and complications of upper lid lowering, lower lid raising and 3-wall orbital decompression
Methods
A retrospective review of the clinical notes for patients undergoing surgical operations for dysthyroid eye disease performed by one surgeon over a three-year period.
Patients who needed upper lid lowering had uni or bilateral upper lid retractors recession; patients who needed lower lid raising had uni or bilateral lower lid retractors recession combined with hard palate graft; patients with proptosis had uni or bilateral 3-wall decompression performed through a 2 cm outer canthal incision, with excision of the orbital floor and the anterior and posterior ethmoids. The lateral wall was excised posteriorly to the bulk of the greater wing of the sphenoid, with the exception of a 2 mm thick bar of orbital rim which was left intact.
Results
Thirty patients were operated. 30% of the patients who needed upper lid lowering had surgery performed two or three times in order to achieve good results in terms of cosmesis. None of the patients who had lower lid raising needed redo surgery. Patients who had 3-wall decompression had proptosis reduced between 5 and 11 mm, this being related to the initial degree of proptosis. No serious complications were observed.
Discussion and Conclusions
The management of dysthyroid eye disease is challenging. The approach to these patients has to be related to the degree of proptosis, the degree of eye motility restriction and the degree of lid involvement, in order to minimize the number of surgical approaches and to obtain satisfactory results.
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Cataract and keratoplasty after trichiasis treatment with radiofrequency. A clinical case

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Trachoma is often complicated by the appearance of trichiasis that is responsible for corneal damage.
A case of trachoma (stage IV) with trichiasis is discussed. A 67 years old female who contracted trachoma at the age of 2 was visited in our Eye Center for the first time in April 1997. On such occasion she was found to have vascularized corneal pannus, nuclear cataract, upper lid entropion and trichiasis in both eyes.
Trichiasis was treated, after local anesthesia, with a radiosurgical unit (Surgitron FFPF by Ellman International, Long Island, New York) under slit lamp control. Special electrodes were used for this particular procedure. The energy produced by the radiosurgical unit destroyed the follicles through their coagulation producing little lateral heat and minor eyelid margin damage. About 20% of the treated eyelashes recurred but were completely removed after a second procedure. After treatment the patient was topically treated for 2 weeks with tobramycin (Tobral) eye drops (Alcon) 2 drops 4 times/day and Tobral ointment (Alcon) 1 application before sleeping. In August 1997 and April 1998 the patient underwent penetrating keratoplasty and cataract extraction with IOL implant in both eyes. In conclusion, radiosurgery appears as a quick and effective method for the treatment of trichiasis with the advantage of being highly effective and of causing virtually no damage to the eyelid margin.

Secondary complicated implants in the anophthalmic socket

Sibilio M. - Roma

The anophthalmic socket dynamisms often provide a difficult wearing of the ocular prosthesis for the patient; and a difficult surgical planning for the ophthalmic plastic surgeon, to give to the orbit the right balance between the left structures and the secondary implants. Moreover, the secondary implants alone cannot solve the problem of insufficient socket, contracted socket and anophthalmic socket with lower rotation of the contents.

The talk concerns the choice and the management of the secondary implants into the anophthalmic socket, multiple implants, and the possible complications using autologous and heterologous materials.

Orthopedic Surgery

PRIMARY TUMORS OF LOCOMOTORIUM IN ATHLETES
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In the last five years we observed 6 male athletes aged 12-26 years affected by primary tumors of locomotorium. They undergone to surgical treatments with successeful results at 1-5 years follow-up (average 2.5). All the athletes were agonist in different disciplines (3 soccer, 1cycling, 1 ski, 1 basket). The diagnosis was always deferred and confirmed with histologic examination: alveolar sarcoma of deltoid muscle, chondromyxoid fibroma of iliac crest, juvenile cyst of humeral diaphysis, bone cyst of great trochanther, osteoid-osteoma of ulnar diaphysis, chondroblastoma of astragalus.
The biopsy is essential for the surgical indication, which must be radical. In our cases the only exception was rapresented by juvenile cyst of humeral diaphysis, that was treated with periodical cortisone infiltrations. In the alveolar sarcoma we adopted a adjuvant radio-chemotherapy because the encapsulated tumoral mass permitted a local eradication without amputation of upper limb.
We don't know the etiology of these tumors and the reasons of deferred diagnosis. We believe in radiographic examinations of painful diseases in young athletes for early diagnosis of primary tumors of locomotorium.
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Biopsy of musculoskeletal tumors: its key role between diagnosis and treatment.

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In tumors of bone and soft tissues of the musculoskeletal system, biopsy has the critical task to provide sufficient tissue for histologic diagnosis and correct staging without compromising treatment. Often underestimated in standard textbooks and in surgical practice, it should be planned as carefully as the definitive procedure and performed with appropriate consideration in order to minimize its potential hazards.

The two principal methods of obtaining a musculoskeletal biopsy are closed biopsy, either fine needle or trocar, and open biopsy, either excisional (removing the whole tumor macroscopically appreciable) or incisional (taking a sample); permanent and frozen sections may be carried out. Each method has advantages and disadvantages, anyhow it should be planned following the completion of imaging techniques. Closed biopsy is relatively less invasive and its short healing time allows an early start of any adjuvant preoperative treatment. On the other side, it provides only a limited amount of tissue which is often insufficient and potentially altered by squeeze artifacts. This kind of biopsy shows considerable limitations in bone tumors, whose histologic diagnosis needs a great deal of experience even with ample amounts of tissue; it proves more accurate in soft tissue tumors and is useful for pure confirmation of local recurrence of a previously known tumor. Excisional biopsy must be confined to lesions ascertained as benign by clinical, radiographic and intraoperative findings. In all the other cases incisional biopsy is preferable and should be performed following well-established rules. The biopsy incision should follow the line of the incision of the definitive procedure: in the extremities it should be placed longitudinally, in other sites it should follow the major axis of the underlying muscles. If an amputation is a likely outcome, the biopsy incision should not interfere with the flap design. The tumor should be approached directly through muscles rather than along the intermuscular planes of traditional orthopaedic surgery, which may enhance tissue contamination. Major neurovascular bundles should be avoided. Meticulous hemostasis is mandatory and drainage should not be placed. If a bone window is to be performed, it should be as small as possible and without sharp corners which could act as stress risers predisposing to pathologic fracture. The residual intraosseous cavity may be plugged with methylmethacrylate or wax for bone hemostasis. Biopsy shortly after fracture should be avoided, because necrosis and hemorrhage may preclude diagnosis; moreover, healing callus may distort the histologic picture. Both needle biopsy and open biopsy require subsequent "en bloc" removal of scar and tract together with the tumor at the time of the definitive procedure.

For these reasons biopsy is recommended to be carried out by the same surgical staff who will perform the definitive procedure. There are still many examples of treatments compromised by biopsy complications: these problems are more common if biopsy is performed in a referring institution rather than in a treating center. They include an amount of tissue inadequate for definitive diagnosis, diagnostic errors, excessive contamination of previously uninvolved tissues, infection, fracture and biopsy incision placed in such a fashion as to jeopardize the definitive surgical treatment up to convert a local procedure into an amputation.

FIBROUS DYSPLASIA: LONG-TERM FOLLOW-UP OF 14 PATIENTS TREATED SURGICALLY OR CONSERVATIVELY

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Fibrous dysplasia is a benign pathological condition characterized by widening of the affected bone, with cortical thinning, and by the presence of osseofibrous tissue with islands of cartilage.

We reviewed, from a clinical and radiographic point of view, 14 patients affected by fibrous dysplasia with an average follow-up of 11.3 years. Eight patients were male and 6, female. Their age at diagnosis ranged from 4 to 42 years. In 10 cases the disease was monostotic and in 4, polyostotic. The diagnosis was made through open biopsy in all cases. In 4 cases the diagnosis was made after the end of skeletal growth, while in 2 cases the disease was diagnosed occasionally. Ten patients were treated surgically. Treatment consisted of curettage and bone grafting in 4 cases, preventive internal fixation with intramedullary nailing in 4 cases, resection and vascularized fibular grafting in one case and corrective osteotomy in one case. In 4 cases fibrous dysplasia recurred, and a second operation was performed.

At follow-up two patients had pain and restricted range of motion, 3 patients presented leg length discrepancies of the lower limb measuring from 2 to 5 cm, and 7 patients had muscular hypotrophy from 2 to 5 cm. Radiographically the lesion was still present at follow-up in all cases, although in 9 patients the final X-rays showed a moderate remodelling of the dysplastic area.

The authors believe that the incidence of fibrous dysplasia is still unknown; moreover, the lesion can get worse even after the end of skeletal growth. The surgical treatment of curettage and bone grafting should be reserved to small lesions localized in an area where fractures are likely to occur. Preventive intramedullary nailing is recommended in wide lesions with a high risk of fracture, whereas resection of the dysplastic area and vascularized fibular grafting should be considered for wide lesions with pluricystic aspect.

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TROCAR BIOPSY CT SCAN CONTROL IN THE SPINE

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The aim of this study is to report our experience on the technique of trocar biopsy CT-guided in the vertebral lesions.

During 1 year (1998) in 19 cases of osteolisis, localized in the vertebra, biopsy was performed.

The average age of patients was 59 years (in a range from 14 to 78 years).

Location of the lesion was in T8 and T10 in 1 case, T11, L1 and L5 in 2 cases, L3 and L2 in 3 cases, and L4 in 5 cases.

All patients presented pain, 3 with pathologic fractures, and 1 with neurologic deficit.

Procedure consists of CT-images of the damaged, the upper and lower vertebrae. After having found the searched-for image, in local anestesia, a trocar needle of 4 cm of diameter has to be inserted into the lesion, possibly passing into the pedicle of the vertebra.

The specimen is sent to histological examination. If there is a suspicion of discitis, a coltural examination is also required.

In all cases, where we proceeded in this way, we had always obtained diagnosis: in 11 cases we found metastates, in 6 cases there were infections and in 2 case primitive tumors (1 osteoblastoma and 1 cordoma).

This is a rather semple way of making biopsy, well accepted by the patient, easy to perform in day-surgery and it allows to obtain a correct diagnosis through a minimal invasive approach, easely excisible with the tumor during the definitive procedure for cases of primitive tumors.

TREATMENT OF CERVICAL SPINE METASTASES

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Introduction. The progresses made in the last years in the field of early diagnosis, medical and surgical therapy of tumors have greatly improved the prognosis and quality of life of the patients suffering of tumors of the cervical spine. Surgery of metastasis and cervical systemic tumors must be seen as a "comfort" surgery, i.e. dedicated to the removal of further causes of suffering of the patient and worsening of the quality of life. The choice of treatment (conservative or surgical) depends on the histology of the tumor, the general status of the patient, the prognosis, and the residual quality of life.

Materials and methods. Our series includes 73 patients with cervical metastasis, 51 of which were surgically treated to stabilize and/or excise the tumor, the remaining 22 were treated non surgically with an external orthopedic stabilization and chemotherapy or radiotherapy. The follow-up ranged from 6 months to 7 years. Of the 51 operated cases 42 were treated only with posterior stabilization, 6 were operated only with the anterior approach with the removal of tumoral tissue and stabilization achieved with autoplastic transplant, plates and support screws, 3 cases were operated first with the anterior approach (decompression, tumoral toilette, transplant and plates and screws) and then posterior (stabilization with plates and screws and bone transplants). We classified the neurological damage according to the Frankel classifications

Results. The pain relief was the first goal we realized in almost all the patients (80%). Of the 71 treated cases 13 died within 2 months of treatment because of the gravity of the general status and the malignancy of the primary tumor, 13 patients died between 2 and 6 months, 11 between 6 and 12 months, 9 between 12 - 24 months, 10 between 24-36 months and 7 within 36-48 months, 3 within 48-60 months. Only 4 patients survived beyond 60 months. In most cases (60%) we obtained the improvement of neurological status, according to Frankel evaluation, and in all cases we improved the nursing care and quality of life.

Discussion. The following considerations may be drawn by our experience:

1. Many metastasis to the cervical spine initially manifest themselves with pain without metameric localization, gradually worsening and most frequently nocturnal.
2. Most cases without vertebral collapse or deformity or neurological deficits can be treated with orthopaedical orthesis or Halo which need to be kept until the radiotherapy and often steroid therapy leads to a disappearance of pain.
3. In the severe cases of tetraplegia surgical treatment is indicated even when prognosis and life expectancy is only a few months. Surgical excision is followed by reconstruction with bone transplant which is subsequently stabilized by plates and screws.
4. Any surgical procedure that could improve quality of life needs to be attempted, in association with local radiotherapy, systemic hormonal and chemotherapy, and systemic analgesic therapy together with nonsteroid anti inflammatory drugs and narcotics.

BIOLOGICAL RESPONSE TO WEAR PARTICLES OF DIFFERENT ORTHOPAEDIC IMPLANT MATERIALS.

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Introduction

We evaluated biological host response to metallic, polyethylene and ceramic debris in failed hip replacements.

Materials and methods

Seventy-three membranes surrounding total hip prostheses were retrieved at the time of revision for aseptic loosening. Couplings were metal-polyethylene, ceramic-ceramic and ceramic-polyethylene. Specimens were submitted to histological, histomorphometric and ultrastructural examination.

Results

The size of the metallic debris ranged from 1 to 3 μm^2, polyethylene from 3 to 180 μm^2 and ceramic from 1 to 12 μm^2. Light microscopy showed metallic particles inside histiocytes. A rich in vessels stroma with necrobiosis and necrotic areas was observed. A sinovial like tissue was found when a large amount of polyethylene particles was released. Giant cells surrounded polyethylene debris in a stroma poor in vessels and necrotic areas. Ceramic particles appeared as yellow-brown fragments inside cells, sometimes were extra-cellular polygonal sharp-edged.

Conclusions

Wear debris induce a different tissue reaction due to material composition, size and amount of released particles. Metal debris cause a direct cytotoxic effect in phagocytes and many wear products diffuse in blood circulation. Polyethylene debris cause a foreign body reaction strictly dependent on the particles number and size. A granulomatous reaction may occasionally be found also around ceramic particles, however a low wear rate generally not induce a relevant host reaction. Nevertheless final result is osteoclastic activation inducing periprosthetic bone resorption.

Parosteal Osteosarcoma: evolution and differential diagnosis.

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Parosteal Osteosarcoma was described the first time in 1951 by Geschickter and Copeland as a variety of Osteogenic sarcoma arising from the surface of bone.

It represents the 5% (Okada and Coll. 1994) of all Osteogenic sarcoma varieties. Its greatest incidence refers to the age group between 20 and 50 years; the commonest site of occurrence is represented by the distal metaphysis of the femur.

Radiographic appearance is characterized by a lobulated mass with a densely ossified base of implant and a well-defined normal trabecular pattern. During its early phases a thin radiolucent zone separates it from the underlying cortex. It doesn't produce a discernible radiographic reaction in the underlying bone. The peripheral edge of the lesion is sharply demarcated from soft tissues.

The histological pattern is characterized by mature well-differentiated trabeculae and proliferating spindle cells within the trabecular spaces.

This pattern can be similar to that of a myositis ossificans or an ectopic island of metaplastic bone.

The diagnosis of Parosteal Osteosarcoma is very difficult especially when it is localized in an uncommon site.

Differential diagnosis must consider Myositis ossificans, Osteochondroma, Desmoid fibroma, Fibrous dysplasia, Fracture callus and Ossified haematoma.

For this reason an adequate radiological documentation is necessary; especially CT and MRI, are important for the evaluation of the relationship between the tumor and the vascular bundle.

Parosteal Osteosarcoma is a low growing tumor and its prognosis is better than other varieties of Osteogenic sarcoma. At the moment of diagnosis is usually intracompartimental but according to Okada it tends to evolve as extracompartimental (Enneking stage IIb).

The rate of recurrence depends on the surgical margins (adequate or inadequate).

The Authors present their experience taken out of a series of 22 cases of Parosteal Osteosarcoma and refer in this paper, to an uncommon case of Parosteal Osteosarcoma with an over 20 years follow-up, with difficult problems for diagnosis.

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THE CENTRAL QUADRICEPS PATELLAR TENDON: AN ALTERNATIVE ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION GRAFT

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Introduction. The goal of reconstruction of the anterior cruciate ligament is to improve the functional capacity of the knee and prevent further damage to secondary restraints. The surgical approach to this problem is controversial, and has been evolving over the past decade. The central third patellar tendon (bone-tendon-bone) graft for reconstruction of the ACL is widely accepted but correlated to high instances of anterior knee pain. The semitendinosis and gracilis tendons also provide an accessible source of tendon autograft for ACL reconstructions but there are controversies about the fixation strength, mechanical properties (less stiff than patellar tendon), and harvesting morbidity of hamstring tendons. At the time of revision ACL surgery, central third patellar tendon and hamstrings may have been used and the surgeon will need another source of tendon for reconstruction. The purpose of this report is to present the central quadriceps tendon autograft as an alternative for revision or primary ACL surgery and to describe a technique for harvesting the central quadriceps patellar tendon autograft-proximal patella bone plug based on 9 operative reconstructions of the ACL using this graft.

Methods. 9 patients underwent ACL reconstruction with a quadriceps tendon graft. 3 of these patients had been referred for revision of failed primary reconstruction, and 3 had had earlier bone-patella tendon-bone graft reconstruction in the other knee. Followup of the 9 patients averaged 9 months (range 6 to 13 months). There were 6 male and 3 female, and 5 right and 4 left knees. Average age was 27 years (range 20 to 36 years). A short mid-line incision from the mid patella, extending proximally as needed provide ample exposure. The combined rectus femoris and vastus intermedius thickness of the central quadriceps tendon is 8-9 mm compared with the patellar tendon, which average about 4 mm thick. From the top of the patella to the central quadriceps muscle, there is a minimum of 7 cm of tendon length, with the 8-9 mm thickness of both rectus femoris and vastus intermedius mainteined from distal to proximal. A 10 mm wide, 20 mm long bone plug, centered on the proximal patella, is fashioned cutting no deeper than 6 -7 mm. The bone block should be 6 to 8 mm thick allowing for 6 mm of tendon depth attached to the bone block, and leaving approximately 2 mm of deep vastus intermedius attached to patella and underlying suprapatellar pouch. It is extremely important to avoid penetrating the suprapatellar pouch that could make further arthroscopic surgery more difficult because the leakage of saline solution. Using this technique one should harvest 7 cm of tendon proximal to the bone block. The tendon graft dimensions should be approximately 50% greater than a comparable patellar bone-tendon-bone graft.

Results. The early experience with this graft has been excellent, patient satisfaction high, and morbidity low. In this series there were no quadriceps tendon morbidity and a rapid rehabilitation with minimal pain. In 3 patients who had had earlier bone-patella tendon-bone graft reconstruction in the other knee, the central quadriceps tendon-patella bone plug graft side was less painfull and rehabilitation easier.

Discussion. The quadriceps tendon, as presented by Marshall[1] et al., more recently by Howe and Johnson[2] and by Staubli, provides an excellent source of tendon graft for anterior cruciate legament reconstruction. The central quadriceps tendon is thicker and wider than the patella tendon. Harvesting this graft is deamanding for the surgeon. Attention to detail while making this procedure will allow the surgeon to obtain an autograft with minimal morbidity.

Conclusion. The central quadriceps tendon graft is an alternative tendon graft for ACL reconstruction or for revision of failed bone-tendon-bone graft reconstruction when the central third patella tendon has already been used.

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CLINICAL EVALUATION OF TOTAL HIP REPLACEMENT: DIFFERENT HIP RATINGS ANALISYS.

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Beginnig from post- operative period it's important to value, periodically, some clinical parameters which permit to show the quality of rehabilitation of the hip and patient. In literature there are a lot of hip ratings for the study of patient with total hip artroplasty.
The different follow up are not always comparable, especially for diversity of clinical criteria of evaluation.
We have studied 30 patients with uncemented THA Biodinamica, using hip rating of Shepherd, Lazansky, Harris, Merle D'Aubignè and Pipino.15 patients were male (50%) and 15 patients were female (50%). Maximum age was 67 years old, minimum age was 40 years old. Diagnosis were: coxarthrosis in 26 cases (87 %); reumatoid arthritis in 4 cases (13 %). The group of patients was homogenous about surgeon, surgical approach (sec. Watson Jones) and post operative protocol. We attended to the results of two consecutive semestral follow up. Patients were always controlled by the same equipe (3 doctors) and using the same questionary.
About pain, the score could be considered the same. About movement, the Harris, Shepherd and Lazansky score consider the Glade's index; instead the Merle D'Aubignè and Pipino protocol consider the range of the movement. About walking, the Harris score is different from the others, because there is not a numeric score. About functional ability, the Harris, Shepherd and Lazansky score consider a detailed analisys of some parameters more or less the same. Merle D'Aubignè and Pipino score consider this parameter like an element of walking and movement. At least the hip deformity caracterized the Harris, Merle D'Aubignè and Lazansky score. We have considered these results: excellent, good, fair and poor. The correlation between different ratings was made considering only the final results in percent. Final results were attended to two consecutive follow up; there were not important differences about gender. In literature were studied the different clinical criterias in the respect of attendibility. Anderson (Anderson 1972) studied 9 hip ratings. His results were very good about affidabiliy and their comparison. Good results of the same group of patients were between 35% and 97.5 %. Callaghan (Callaghan et al 1990) analyzed 5 clinical criterias and he obteined excellent results in 60 – 90% of cases.We obteined the same results of aforementioned works. Our results were excellent in 40 – 73% of cases. Percentual dates were the same about 3 most important hip ratings of Merle D'Aubignè and Pipino. Instead the Shepherd and Lazansky results were different. A clinical criteria evaluation must be fast and easy to use, made by the same surgeon and his equipe. The score permits a semplified tabulation, a numeric comparison and a statistic examination. We have to consider the two principal elements which cause a difficult comparison of the same record of case on time and in more different case histories:- patient's necessity and his cultural level; - the way in which this necessity could change accordig to the age, others fears and work.

TREATMENT OF MONOSTOTIC NONUNIOS OF THE FOREARM WITH *GREEK FRET-SHAPED GRAFT.*

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The treatment of the monostotic atrophic nonunions of the forearm has a particular difficulty. The bone ends resorption, typical of this nonunion, makes it impossible to obtain the interfragmentary compression by means just osteosynthesis since the pantographic effect of the interosseous membrane and the integrity of the other skeletal segment tend to maintain the fragment diasthasis.
In the years, various therapeutic protocols have been proposed without reaching a definitive solution.
So, we have realized an original type of graft, whose primary characteristic is its particular shape. The name of **Greek fret-shaped graft** was suggested by its resemblance with the ornamental geometric figure, by which it is inspired.
This graft is removed form the iliac crest. We model it in Greek fret shape so that its vertical clutch claw sticks in axial compression in the place of the nonunion resection and its two orizontal wings are adapted to the longitudinal emidiaphysectomy of the bone fragments.
We complete the osteosynthesis placing a compression plate with 6 screws.
In two years time we trated 3 patients with an atrophic nonunion of radius and 4 patients with an atrophic nonunion of ulna. In all cases, in 6 mounths time from surgical treatment, we obteined the nonunion healing without any reductions in the movment range or complications.
The efficacy of this surgical technique is due to the particular characteristics of the graft. The Greek fret-shape perfectly fills up the gap, it obtains a good stability with a sufficient axial interfragmentary compression and it permits short healing times. This complex graft-plate do not go beyond the anatomical bone borders; so it is possible to avoid functional residual deficit of movements.
The intrinsec stability of the graft and the tipical bone quality of iliac crest permet an easy osteo-integration. So, we guess this technique could be an unitary resolution in the treatment of this type of nonunions.

ARTHROSCOPIC ASSISTED POSTERIOR CRUCIATE LIGAMENT RECONSTRUCTION USING SEMITENDINOSUS-GRACILIS TENDONS DOUBLED GRAFT: OUR EXPERIENCE

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In adult patients with high level activity (professionals sportsmen, workers who have intense joint loading, etc.), isolated posterior cruciate ligament (PCL) reconstruction is necessary only in a low percentage. Currently, the replacement of PCL using biological autografts (semitendinosus-gracilis tendons (STT-GR), patellar tendon (PTB) or quadriceps tendon (QT)) is the most widely used surgical technique. In our opinion, the use of STT-GR graft is to be recommended in order not to damage the patellar and quadriceps tendon.
Between 1991 and 1998, we operated 12 knees in as many patients who had a PCL lesion using the STT-GR doubled graft for the replacement. We treated 8 left and 4 right knees.
These individuals were either athletes or young high level activity individuals; 10 of these lesions were acute and 2 chronic. All these individuals had a posterior drawer test greater than 10 mm, subjective instability and subsidence; and furthermore, they had MRI which demonstrated PCL lesion.
We used the standardised surgical technique: tibial and femural tunnels (8-9 mm diameter) were drilled; this was followed by isometric fixation of the graft (using proximal and distal screws and washers and not reabsorbing threads), after its pre-tensioning; furthermore, in 4 patients interference screws were used.
Mean follow-up was 29 months (range 14 to 36 months). We used both clinical and instrumental evaluation criteria.
Clinical evaluation of the results was based on the patient's subjective condition, on the stability's test (posterior drawer test, pivot shift), on the state of the joint (lack of articular effusion, deformities, range of motion and joint stiffness) along with tone and trophysme of muscles acrossing the joint.
Postoperatively, we examined features on standard Rx, Rosemberg Rx view and MRI.The isokinetic test was performed as well as the KT 1000 test, comparing the results obtained to the controlaterale ealty knee and to the preoperative measurements.
Our results show that the arthroscopic replacement of the PCL by STT-GR doubled graft is better than the arthrotomic technique, primarily due to its ability of enabling early rehabilitation and decrease postoperative pain and joint effusion, thus permitting a faster restoration of the joint function.
We believe that the operation must be performed before the degenerative changes become established.

BIOLOGICAL ARTHROPLASTY IN CARPAL BONE NECROSIS

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INTRODUCTION Authors report their 14 years experience with a new surgical method for the treatment of carpal bone necrosis.

METHODS 55 patients have been evaluated (41 male, 14 female), 27 were affected by Kiembock's disease and 28 by navicular proximal pole necrosis, average age 27 years (max 59 - min 14).
The surgical technique consists in the total removal of necrotic bone and its replacement with biological prosthesis of tendon palmaris longus, or a part of RFC.

RESULTS The clinical and imaging evaluations has shown a low incidence of side-effects, with a good functional restore without degeneration or calcification signs of the tendon graft.

DISCUSSION AND CONCLUSIONS The surgical treatment proposed, realized in a single surgical time with low incidence of side-effects, combines easy technique to biocompatibility of tendon graft.

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